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Clean Air Act - Section 112(r)
Risk Management Program
Inspection Report

FACILITY INFORMATION:

Name:	Olympic Chemical Corporation
Physical Address:	1002 East D Street, Tacoma, Washington 98421
Phone Number:	(253) 572-4215
Latitude/Longitude:	47.255333/-122.430083
EPA Facility ID#	1000 0005 6468

Dunn and Bradstreet I.D.s: Facility: 083362822; Parent: 102971785

CONTACT INFORMATION:

Emergency Contact:	Mr. Geoffrey Black, Branch Operations Supervisor
Phone Number (24-hr):	(253) 572-4215
24-Hour Phone:	(800) 424-9300
E-mail:	Geoff.Black@UnivarUSA.com
RMP Contact Person:	same
RMP contact Phone	(253) 572-5007

CONDITIONS:

Weather:	Partly sunny, mild (70 °F).	
Inspection Date:	July 13, 2011	
Inspection Time:	14:10 through 17:00	
Inspectors:	Charles Wilson	EPA SEE Grantee, RMP Inspector, Lead
	Stephanie Allen	EPA SEE Grantee, RMP Inspector
	Bob Hales	EPA SEE Grantee, RMP Inspector
	Brittany Gifford	NNEMS Fellow/EPA RMP Intern
	Jim Petersen	Ecology & Environment, Inc. (START), Contractor

SELECTION CRITERIA:

This is an initial routine RMP inspection of the facility. This facility is identified as a high risk facility.

PURPOSE:

The purpose of this initial inspection was to determine whether this facility complies with requirements of Section 112(r) of the Clean Air Act and Title 40 Code of Federal Regulations (CFR) Part 68.

RMP SUBMISSIONS (as of 7/13/2011)

Plan Sequence Number	Sub Type	EPA Facility Identifier	Facility Name	Facility City	Facility State	Receipt Date
4580	F	1000 0005 6468	Olympic Chemical	Tacoma	WA	18-JUN-1999
14775	C	1000 0005 6468	Olympic Chemical	Tacoma	WA	19-JUL-1999
31602	R	1000 0005 6468	Olympic Chemical Corporation	Tacoma	WA	15-JUN-2004
45879	C	1000 0005 6468	Olympic Chemical Corporation	Tacoma	WA	13-JUN-2006
54714	R	1000 0005 6468	Olympic Chemical Corporation	Tacoma	WA	15-JUN-2009

F - First submission, R- Revision, C – Correction

PROCESS REPORTED IN RMP:

Process ID	Description	Process Chemical ID	Program Level	Chemical Name	CAS Number	Quantity (lbs)
79836	Bulk Handling and Mfg.	106455	3	Sulfur dioxide (anhydrous)	7446-09-5	180,000

NRC RELEASE HISTORY: No reported releases as of 7/13/11.

INSPECTION ENTRY:

The U.S. EPA Risk Management Program (RMP) inspection team, inspected the Olympic Chemical Corporation (Olympic) facility on July 13, 2011. The RMP inspection team included Mr. Chuck Wilson, Mr. Bob Hales, Ms. Stephanie Allen, and Ms. Brittany Gifford, and Mr. Jim Petersen of Ecology and Environment, Inc. (EPA START Contractor). Mr. Wilson led the inspection entry. Ms. Gifford participated as a college student intern. The inspection team signed in at the Olympic main office, and met with Olympic Representatives:

Mr. Michael Nassralla	Regulatory Manager
Mr. Mark Rogers	Regional Operations Manager
Mr. Geoff Black	Branch Operations Supervisor

The team arrived at the facility at 14:10 hours. The inspection team was escorted to the facility office. Introductions were made by Mr. Wilson, who provided a summary of the risk management program (RMP) and explained the purpose of the inspection. Each team member presented his/her credentials.

Mr. Wilson requested an explanation of the facility's operations and a pre-tour discussion of safety measures that should be taken during the site tour. Mr. Black gave a brief description of the Olympic facility operations and the covered process. Mr. Black and Mr. Nassralla gave the inspection team a brief overview of the facility safety requirements. The personal protective equipment (PPE) required by the facility and worn by EPA and Ecology & Environment included safety glasses. No noisy operations were active to require hearing protection during the inspection.

GENERAL INFORMATION:
The Olympic Chemical Corporation facility located in Tacoma, Washington is regulated under the Risk Management Program as Program Level 3, NAICS 325188 for sulfur dioxide manufacturing. This branch facility is owned and operated by Univar USA, Inc. of Redmond, Washington. This facility manufactures sodium bisulfate from sulfur dioxide (an RMP-regulated substance), sodium hydroxide, and water. The product is offered for bulk sale to industrial customers for water treatment, pulp and paper manufacturing, and other applications. The facility receives sulfur dioxide in 90,000 pound railcar tanks. These are staged on the rail spur (within a security fence) until used in the process. The sulfur dioxide is offloaded from the railcars directly into the sodium bisulfate reactor system with no intermediate storage.

There are two full time employees at the Olympic facility. A single story office building and a workshop are on the property. The sodium bisulfate processing area is located on the eastern portion of the property, adjacent to the railroad line. A garage and parking area on the northern portion of the property are leased to Crowley Maritime, a tug boat operating company, for use as secured parking. Sodium bisulfate manufacturing operations began in 1976, with a single process reactor. A second, duplicate reactor was constructed in 1997. Univar USA, Incorporated purchased the facility in January 1998.

The maximum intended inventory of sulfur dioxide at the facility occurs when two full railcar tankers, or a total of 180,000 pounds, are staged on the rail spur. This amount exceeds the threshold quantity of 5,000 pounds for sulfur dioxide.

ON-SITE OBSERVATIONS:
The inspection team toured the Olympic Chemical Corporation covered process area from approximately 14:40 hours to 15:15 hours, escorted by Mr. Nassralla, Mr. Rogers, and Mr. Black. The inspection team observed the process control building, the railcar siding and offloading area, and the sodium bisulfate reactors. The team also observed safety equipment and the process control system. The facility utilizes a Powell control system to prevent releases from common situations. These include sulfur dioxide (SO_2) detection with SO_2 sensors located in various locations in the process and railcar staging areas.

The Powell control system has capability of automated, safe closure of a pressurized fluid's supply valve based on monitoring selected conditions and provides opportunity for anticipating changed variables to achieve safe isolation of chemical sourced prior to accidental release. These conditions are selected from interpretation of the application particulars to attain safe valve-isolation action in response to sentinel safety events. When the sentinel events occur, the facility chooses to automatically interrupt manufacturing operations based on potential for a containment breech or loss of optimum safety response. The valve isolation is executed on anticipation of potential delay achieving safe valve isolation condition by locking down the regulated chemical before accidental release. For example, compressor failure may be chosen to safely shut-down processing *before* air reservoir pressure loss risks assured safe valve closure response to chemical release.

For the Olympic facility, the railcar tanker is set, chocked and delivery and vent hoses are

attached to the valves mounted inside the railcar tanker's dome cover. Powell components are made of heavy steel construction and Olympic keeps these at a service platform elevation for ergonomic safety and convenience. Powell valve actuators attach and align-adjust on mount rails that straddle the (open cylinder) valve dome. Screw clamps anchor the mount rails to the dome walls to allow actuators' mechanical engagement of valve handle's disc. The handle wheels are penetrated by the removable actuator forks. On signal, the actuators rotate the forks and the valve opens or closes. The actuators are pneumatic motors attached to solenoid valves which respond to logic responses to various sensors' inputs indicating an unsafe condition or loss of safety response.

Valve-close response is executed from:

1. Human operator directive when any unsafe condition is observed, the operator may strike one of the emergency process stop buttons and all selected valves move to safe positions, according to programming.
2. Sulfur dioxide detection automatically triggers valve actuation to safe positions when prescribed threshold is detected at chemical monitor locations.
3. Proactive response, close and isolate the railcar tanker before any chemical release for hazardous conditions:
    a. loss of electrical power (attains safe condition before computer, compressor, lighting, sensor functions fail);
    b. loss of pneumatic pressure, (valves close on air leak before actuation pressure is lost);
    c. movement of the railcar (lanyard "deadman" switch signals for safe condition before car movement endangers chemical hoses or broken fitting releases).
4. Other potential unsafe condition (for illustration, these are not utilized at this site):
    a. Thermal runaway of exothermic process;
    b. Pressure anomaly (hose rupture, vessel overpressure, under pressure);
    c. Intrusion, safety covers detection;
    d. Assured ventilation or cooling flow (air/water);
    e. Fire detection.

The remote detection and mechanized response allows the railcar tanker to be made safe in a fraction of the time a operator requires to correctly respond to unsafe events. Generally an operator must execute multiple required reactions such as issue warnings, don PPE, approach the railcar tanker, climb to the dome and screw-down the valves. The Powell equipment is capable of attaining-safe chemical supply before the operator can stand up or make the telephone warning.

Olympic Chemical's SO_2 detectors sound an audible evacuation alarm for plant occupants and nearby off-premises persons if sulfur dioxide is detected at or above 20 parts per million (ppm) in the air. The railcar siding and offloading area is located adjacent to (outside) the facility's main security fence perimeter. This is an open chain link fence and nearby personnel or traffic can easily see the railcar tank and process piping through the fence. The operator's station is a windowed building approximately 30 feet from the process equipment and the dome car attachments. An adjoining fenced enclosure provides security for staged railcars by providing roller-extended fencing to envelop two parked tank cars on rail-owned siding while Olympic

Chemical is unloading. This arrangement is made with permission of the rail siding owner. The railcar siding has space to accommodate three parked railcar tankers, but Olympic Chemical can only secure and unload railcars in two of the three siding positions.

The Olympic facility is not a first responder. The facility personnel are trained and equipped to address small hazardous material leaks that can be controlled with minimal equipment and exposure. The facility relies on the Tacoma Fire Department for first response in the event of a major release event.

RECORDS:

Photographs were taken in the process control building, sodium sulfate process area, and the railcar unloading area. Electronic copies of the photographs were given to facility representatives by transferring the photograph files to a USB thumb drive provided by Olympic. Inspection photographs are included in Attachment A to this report. A facility diagram and other documents received by EPA during the inspection are included in Attachment B. Attachment C includes EPA inspectors' checklists, field notes, and EPA's request for follow-up documentation.

At 15:20 hours, after touring the covered process, the inspection team returned to the main office to review the RMP documentation. The inspection team was joined by Olympic representatives, Mr. Nassralla, Mr. Rogers, and Mr. Black. During the document review, the Olympic representatives addressed the EPA inspector questions and retrieved documentation. Upon completion of the document review, EPA inspection team provided a closing conference to discuss the findings, observations and recommendations.

Documents obtained during the inspection are listed below, and copies are included in Attachment B of this report.

1. Univar - Olympic Chemical Emergency Evacuation and Equipment Map (facility diagram).
2. 2009 Process Hazard Analysis worksheet with risk matrix ranking system.
3. Olympic Chemical Facility Emergency Action Plan (May 19, 2009).

FOLLOW-UP ITEMS:

The follow-up items listed below were requested during the inspection. These items were summarized on a Facility Follow-up Documentation form, and a copy of this form was left with Mr. Geoff Black at the conclusion of the inspection on July 13, 2011. A copy of this handwritten list also is included in Attachment C to this report.

1. Documentation for off-site impacts – environmental receptors.
2. Contractor information for company that replaced piping. (NOTE: This item was provided to EPA at the end of the inspection 7/13/2011, satisfying the information request).
3. Records of 2004 Process Hazard Analyses resolution of recommendations.

CONCLUSIONS:

The inspection team reviewed the RMP records using the Program 3 inspection checklists. The following is a summary of the RMP inspection findings. The deficiencies are accompanied with regulation subpart number.

1. **Regarding hazard assessment requirements:**
   - Olympic Chemical Corporation did identify environmental receptors within the distance to the endpoint based on a circle with the point of release at the center as required by 40 CFR 68.33(a). The Olympic staff stated that the LandView software failed to determine and display the endpoint. On July 27, 2011, Olympic provided documentation showed that the LandView software demonstrated that the reported 16 mile radius is correct, but with no environmental receptors identified.
   - Olympic Chemical Corporation did not rely on information provided on local USGS maps, or on any data source containing USGS data to identify environmental receptors as required by 40 CFR 68.33(b). On July 27, 2011, Olympic provided documentation showed that the LandView software demonstrated that the reported 16 mile radius is correct, and could not obtain automated determination of environmental receptors within in endpoint area. EPA inspector, Bob Hales concurs that the LandView software was not performing properly when he attempted to provide telephone assistance to Olympic. Olympic is required to to identify environmental receptors either using the LandView software the USGS maps that are available.
     Olympic Chemical Corporation did not produce documentation for alternate release scenarios: a description of the scenarios identified, assumptions and parameters used, the rationale for the selection of specific scenarios, and anticipated effect of the administrative controls and mitigation on the release quantity and rate as required by 40 CFR 68.39(b).

2. **Regarding prevention program requirements:**
   Process Safety Information: Olympic Chemical Corporation did not produce documents identifying the technology of the process specifying an evaluation of the consequences of deviation as required by 40 CFR 68.65(c)(1)(v). The 2009 PHA contains charts with System Railcar of Sulfur Dioxide/Subsystem Awaiting Unloading. This document contains information on the What If, Hazards, Consequences, Hazard Matrix scoring and Recommendations columns. Sheets 6 and 7 explain the risk matrix and recommendation list. This document does not list the measurements, operation ranges and consequences of deviation for railcar tankers. This document does not address the primary plant process such as thermally reactive mixing and reaction of the sulfur dioxide. In addition there are no temperature, pressure, flow rates, and consequences of deviation. The primary facility process remains undefined for operating parameters and consequences and control procedures.
   - Process Hazard Analysis: Olympic Chemical Corporation did not produce documentation of an established system to make disposition of PHA team findings per 40 CFR 68.67(e) to: promptly address the PHA team's findings and recommendations;
     - assure that the recommendations are resolved in a timely manner and documented;

- documented what actions are to be taken; DEFICIENCY - (IMPLEMENTED IMPROVEMENTS NOT DOCUMENTED AND CLOSED-OUT).
- document completed actions as soon as possible;
- developed a written schedule of when these actions are to be completed; and
- communicated the actions to operating, maintenance, and other employees whose work assignments are in the process and who may be affected by the recommendations as required by 40 CFR 68.67(e).

The Olympic Chemical Corporation conducted a 2004 PHA and a PHA review on May 18 and 19, 2009 for their sulfur dioxide process. This latest PHA found no actions selected for implementation based on a 'low' Risk Rank score. The 2004 PHA found recommendations to replace sulfur dioxide sensors with improved "Gas-Tech"$_{TM}$ sensors. Additionally, the 2004 PHA recommendation added four sensors in four additional detection locations added to the single original sensor. These sensors were installed in August 2005 and perform safe, automated shutdown of the sulfur dioxide process using Powell actuators to close or open valves based on sulfur dioxide or other sentinel indicators of a release hazard. The 2004 PHA document is mentioned, because it resulted in safety improvements and indicates an active PHA program. The 2004 PHA was not examined during the July 13, 2011 RMP inspection, rather the most recent 2009 PHA was evaluated.

The May 19, 2009 PHA review produced 24 possible "what if" conditions and recommendations. These "what if" line items were not assigned true "suggestions" for the condition because the recommendation entries were "promoted" into identically-worded action plan document entries, stating, "See the Recommendations in the Action Plan in Section 6 of this Plan." No appropriate recommendations were produced for the "what if" items posed in this PHA as they were converted to "action items" and then executed.

When Section 6 is examined, none of the twenty-four PHA worksheet items match with the three recommendations listed on the Action Plan, despite the 24 items distinct citation to the Action Plan. While the three recommendations were assigned to a person (task-owner), completion dates were marked "N/A" and all action codes were assigned "N" (indicating "No Action Planned") without further assessment or explanation for each "what if" disposition.

Several of the twenty-four "what if" items list the sulfur dioxide release as a potential consequence. The "Powell System" and associated sentinel sensors provide good monitor, prevention and relief-mitigation response for several "what if" scenarios. A rigorous PHA should cite these valid mitigation provisions to demonstrate best effort reduction and prevention of the release possibilities that was missing from the 2009 PHA.

The lack of association of the twenty-four Worksheet Recommendation items to the identified Actions Plan items fails to close the 2009 PHA assessment. This is a PHA deficiency, even with the use of the matrix to justify a valid "No Action" response.

The 2009 PHA submission provides an invalid risk assessment chart. Classic risk assessment matrices assigns a column of "m"(typically 5) levels of likelihood inputs and a row of "n" (typically 5) severity inputs. These row and column level assignments provide "m" multiplied by "n" risk assessment output values. The 5 x 5 chart attached to the PHA is constructed incorrectly with both the inputs factors embedded into the chart, producing 16 assessment values instead of the 25 indicated by a 5 x 5 matrix.

INSPECTION REPORT CERTIFICATION:

This is to certify that I, Charles Wilson, was the lead inspector at this facility and that I have verified the accuracy and completeness of this inspection report:

Lead Inspector — Date 1/9/2013

Supervisor Review/Approval — Date 1/9/2013